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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Chiharu NISHIZAWA, et al.
Serial No. : 09/876,946
Filed : June 11, 2001
For : SYNTHETIC RESIN LAMINATE HAVING BOTH
POLARIZATION CHARACTERISTIC AND
PHOTOCHROMISM CHARACTERISTIC
Art Unit : 1711

D E C L A R A T I O N

Honorable Commissioner of
Patent & Trademarks
Washington, D.C. 20231

I, Kenji KOUNO, Japanese citizen, residing at
c/o Mitsubishi Gas Chemical Company Inc., Corporate
Research Laboratory, 22 Wadai, Tsukuba-shi, Ibaraki-ken
300-4247 Japan,

Declare:

That I am an inventor of the above application,
and familiar with the invention and prosecution history of
said application ;

I performed the following experiments in order
to demonstrate that the resin layer having photochromism
characteristics of the present invention has good adhesion to

both the polycarbonate resin layer as an outer layer and the resin layer having polarization characteristics.

Experiment

The experiments were performed according to Example 1 of the specification and JIS K 6854-3 (1999) (ISO 11339 : 1993) (Adhesive-peeling-off adhesive strength test method).

The photochromic pigment-containing resin solution and the polarizing film (thickness $30\mu\text{m}$) were prepared in the same manner as in Example 1.

[Preparation of laminate A]

The photochromic pigment-containing resin solution obtained above was coated to a first polycarbonate sheet (thickness 0.3 mm , width 150 mm , length total 200 mm : coated portion 150 mm and non-coated portion 50 mm from the sheet edge) with a doctor blade of $100\mu\text{m}$ and then standing for 10 minutes in the atmosphere of 45°C . Then, a second polycarbonate sheet (thickness 0.3 mm) was adhered to the coated photochromic pigment-containing resin solution on the first polycarbonate sheet. The thickness of the resin layer having photochromism characteristics was $75\mu\text{m}$.

The laminate thus obtained was heat cured at 70°C for 2 days, whereby laminate A was prepared.

[Preparation of laminate B]

The photochromic pigment-containing resin solution obtained above was coated to the polarizing film obtained above (thickness $30\text{ }\mu\text{ m}$, width 150mm, length total 200mm: coated portion 150mm and non-coated portion 50mm from the film edge) with a doctor blade of $100\text{ }\mu\text{ m}$, and then standing for 10 minutes in the atmosphere of 45°C . Then, a first polycarbonate sheet (thickness 0.3 mm) was adhered to the coated photochromic pigment-containing resin solution on the polarizing film. The thickness of the resin layer having photochromism characteristics was $75\text{ }\mu\text{ m}$.

Then, an urethane adhesive was coated with a doctor blade of $100\text{ }\mu\text{ m}$ on the side of the polarizing film in the laminate so as to form a thickness of $75\text{ }\mu\text{ m}$ after evaporation of the solvent and a solvent was vaporized and then a second polycarbonate (thickness 0.3 mm) was adhered thereto.

The laminate thus obtained was heat cured at 70°C for 2 days, whereby laminate B was prepared.

The laminates A and B thus obtained were standing at 25°C for one day.

Each of the laminates A and B thus obtained were cut into a specimen of width 25 mm \times length total 200 mm including 150mm of coated portion and 50 mm of non-coated portion from the sheet edge or the film edge, whereby specimen A based on laminate A and specimen B based on laminate B were prepared.

Peeling-off adhesive strength of specimens A and B thus obtained were measured by pulling and bending the non-coated portion according to JIS K 6854-3 (ISO 11339). The peeling-off adhesive strength of specimen B was measured for the adhered surface of the resin layer having photochromism characteristics and the polarizing film.

The peeling-off adhesive strength of specimen A was 3.5 kg/cm and that of specimen B also was 3.5 kg/cm.

Conclusion

As shown in the above experiments, the adhesive strength of the resin layer having photochromism characteristics to the polycarbonate sheet is the same as that of the resin layer having photochromism characteristics to the polarizing film.

The undersigned declarant declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signed this day of July 25, 2003

Kenji Kouno

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